

Sub A4 > Patent Claims:

Sub A5 > 1. Method for stabilizing the optical output power (light power) of light emitting diodes and laser diodes, characterized in that the combination of diode current and forward voltage serves as a definite measure for the light power emitted by the light emitting diode or laser diode, where it is assumed that at a constant light power the forward voltage is a function of the diode current.

2. Method as set forth in claim 1, where the function that determines the forward voltage from the diode current at a constant light power is determined through measurements at various temperatures and where the light emitting diode or the laser diode is connected such that the resultant functional correlation between diode current and forward voltage is set solely through electrical mechanisms.

3. Method as set forth in claim 2, where the forward voltage is measured via an analog/digital interface using a suitable data processing device, and where the diode current is controlled via a digital/analog interface such that the previously determined functional correlation is established between the set diode current and the measured forward voltage.

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4. Method as set forth in claim 2, where it is presumed that the function from which at a constant light power the forward voltage is deduced from the diode current is a linear function.
5. Method as set forth in claim 4, where in the case of a constant forward voltage at a constant light power and an increasing diode current this correlation is established through the operation of the light emitting diode or laser diode at a constant voltage source.
6. Method as set forth in claim 4, where in the case of a linearly decreasing forward voltage at a constant light power and an increasing diode current this correlation is established through the operation of the light emitting diode or laser diode together with a resistor connected in series at a constant voltage source.
7. Method as set forth in claim 4, where in the case of a linearly increasing forward voltage at a constant light power and an increasing diode current this correlation is established through the operation of the light emitting diode or laser diode in a suitable circuit with a negative resistance whose reference input is connected with a constant voltage source.

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8. Method for stabilizing several similar light emitting diodes or laser diodes, where one light emitting diode or laser diode is stabilized using a method as set forth in claims 3 or 5 to 7 and where the remaining light emitting diodes or laser diodes are connected in series and operated such that the current flowing through the first light emitting diode or laser diode also flows through the remaining ones.
9. Method for stabilizing several similar light emitting diodes or laser diodes, where one light emitting diode or laser diode is stabilized using the method as set forth in claims 3 or 5 to 7 and where the remaining light emitting diodes or laser diodes are operated by one or more voltage sources whose source voltage follows the forward voltage of the first light emitting diode or laser diode.
10. Method for stabilizing several similar light emitting diodes or laser diodes, where one light emitting diode or laser diode is stabilized using the method as set forth in claims 3 or 5 to 7, a first portion of the remaining light emitting diodes or laser diodes is connected in series and operated such that current flowing through the first light emitting diode or laser diode also flows through the remaining ones of this first portion, a second portion of the remaining light emitting diodes or

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laser diodes is operated by one or more voltage sources whose source voltage follows the forward voltage of the first light emitting diode or laser diode and where additional portions of the light emitting diode or laser diode are connected in series and operated such that the currents flowing through the light emitting diodes or laser diodes of the second portion flow also through the remaining portions.

11. Method for determining the forward voltage of a light emitting diode or laser diode (1) as a function of the diode current at a constant light power where the temperature of the light emitting diode or laser diode (1) is varied using a heating or cooling device (2,3) and where the emitted light power is obtained using a photo detector (4) and maintained at a constant level using a control device (5,6,7) and where the values of the forward voltage and the diode current are measured at various temperatures.

12. Method for determining the parameters of a linear correlation between the diode current and the forward voltage of a light emitting diode or laser diode at a constant light power or for balancing of a circuit of a light emitting diode or laser diode stabilized using a method according to one of the claims 5 to 7, where the time progression of the light power is traced during a

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power-up procedure and where the parameters are set such that the light power remains constant in spite of the increasing temperature of the light emitting diode or laser diode after power up.